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ABSTRACT

As may be seen from data collected during language observations of four children over a period of two and a half years, children's sentences are not simply flawed versions of adult counterparts, but seem to result from a different grammar. These data indicate that logical formatives, such as "even," and "only," are sentence-initial constituents. They also point to interesting relationships between the structure of children's sentences with logical formatives and that of their negative and interrogative sentences. Children's understanding of these sentences appears to follow from a combination of phonological, syntactic, and lexical information. (JM)

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Not How Children Get Even, Only

One of the more interesting issues in recent discussions of linguistic theory concerns the question of how to account for such logical formatives as even in adult speech. Chomsky and his colleagues have always placed their discussions of the justification and evaluation of theoretical proposals in a psychological context, saying, to cite but one example, that

> to clarify the empirical status of the formal devices selected for the theory of language, it is helpful to set the problem within the framework of psychological theory. The child is presented with certain "primary linguistic data," data which are, in fact, highly restricted and degraded in quality. On the basis of these data, he constructs a grammar that defines his language and determines the phonetic and semantic interpretation of an infinite number of sentences. This grammar constitutes his knowledge of his language. ... These rather obvious facts pose the problem to which the linguist addresses himself, that is to account for the child's construction of a grammar and to determine what preconditions on the form of language make it possible (Chomsky and Halle, 1968, pp. 330-31).

However, as is well-known, the task of describing the grammar that the child constructs--the determination of the child's grammatical capacity--is a difficult one. For one thing, such investigations as that reported in Fraser, Bellugi, and Brown (1963) have shown that a child's grammar does not relate to adult grammar in any simple way--that is, a child's sentences are not simply flawed versions of their adult counterparts, but they seem to result from a different grammar. Also, it is far from obvious what a child's grammatical capacity is; his competence is, if anything, less available to the investigator than that of an adult (since, of course, the investigator as an adult does not speak or comprehend sentences in quite the same way that the child does). Furthermore, as the child matures, his language changes, though not in any simple way. Nowhere is the distinction between the syntax of the adult and that of the child more obvious than in the distribution of such logical formatives as even and only. Since the question of how to account for forms such as even figures in such a central way in theoretical discussions, it seems to me worthwhile to consider their occurrence in the speech of children. In this paper, I shall describe how some children use such formatives as even and only in the context of how adults use and interpret such constructions and also in the context of the development of negation in children's speech.

To begin with, let us consider briefly the way in which adults use even and only. While linguists are divided on the question of whether such formatives derive attached to their scope or derive from some fixed position and are moved into position with their scope (see, for example, Fraser (1970), Jackendoff (1969), Kuroda (1969), Chomsky (1970), and Anderson (1972)), all linguists appear to agree that (1) these formatives can occur in a variety

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of positions in the surface structure of a sentence, (2) interpretation of a sentence containing, say, even depends on what one takes to be the scope of even, (3) interpretation of such a sentence involves a complex operation which must take into account not only the proposition but also presuppositions or assumptions, (4) even ordinarily occurs in surface structure immediately before the constituent which functions as its scope except in the case in which there is sentence scope, and (5) the "scope constituent" contains the intonation peak of the sentence. Sentences such as Even aluminum is heavier than tin, Goats will eat even fiberboard, and The man even bit the nickel illustrate some of the possibilities. The scope of even in the first example is the subject aluminum, it is the object fiberboard in the second, and it is the verb bit on one reading of the third; and the intonation peak of each sentence occurs on those constituents. Further, the interpretation of the first example involves at least the following assertions: aluminum is heavier than tin, other things are heavier than tin, and the fact that aluminum is heavier violates the expectations of the speaker, his audience, or both. If only were substituted for even, the last two assertions would be: nothing else is heavier than tin, and the fact that nothing else is heavier violates expectations. Similar interpretations hold for the other examples. Finally, although the normal position for an even or only with sentence scope is between the subject NP and the predicate phrase (e.g., Mike even built a boat), some dialects allow a sentence final even or only with sentence scope (e.g., Mike built a boat even). However, no adult dialect of which I am aware allows a sentence scope even or only in a sentence initial position. Sentences such as Even Mike built a boat are invariably given a subject scope interpretation.

At least some children, however, reach a stage in their language development in which all even's and only's occur in sentence-initial position. Over a period of two and one half years, I have observed the speech of four children--Tony, Ann Laura, Richard, and Corey--for varying lengths of time. During the period when I observed them, Tony ranged in age from four years nine months to seven years one month, Ann Laura ranged from two years ten months to three years nine months, Richard ranged from five years five months to six years one month, and Corey ranged from five years four months to five years nine months. Basically, the research approach was to write down examples as they occurred while the children played or otherwise went about their daily activities. Relatively little conscious experimentation was attempted for that that was seemed unrevealing at best and tended to block the flow of examples at worst. The following list provides typical examples of the children's sentences with logical formatives.

Sentence Scope (Parenthesized material represents the observer's comment or the speech of someone other than the child under observation.)

1. I had a terrible time. I tripped and fell down. Billy kicked me. Even Brian hit me with a stick.
2. I was very good outside. (You were. Those boys had a little trouble being good.) Also I don't like Danny.
3. I can go all the way across the pool. Even she doesn't have to hold me.
4. If the sign wasn't there, there might be a wreck. A car might smash into us. Even we might have a problem.
5. She was out for a while. Even she was about to leave when I got up.

6. (We've got to buy valentines.) Even we should look at toys.

Subject Scope
7. Even you don't have the same glasses like me. Just I do, don't I?
8. Even I can stand up.
9. (Don't cry baby.) Even mommies can't cry.
10. O look! Even Bamm Bamm is here.
11. (We'll all go.) Even me, too.

Verb Phrase Scope
12. It was really raining hard. Even it thundered.
13. She's very tall. Even she's a big, long giant.
14. Even that bigger thing is a glass top, and it breaked.
15. Even I'll put on my sweater.
16. Even you can't button my sweater.
17. Bob has a big gun. Even I can't pick it up.
18. (Here's the police car that goes with your rescue center.) Even we could pretend it's an ambulanee.
19. (In the context of a discussion about what one may properly do with a baby's bottle) Mommy, only a bottle is to put in your mouth.
20. Only you can stand on the floor and look at it. Don't climb on it.

Verb Scope
21. She hit me with the rocking chair. Even she colored on the rocking chair.
22. (He's silly, isn't he?) Yeah. Even I don't like that man.
23. Children shouldn't carry sharp knifes. Even you might get cut on those sharp blades.

Object Scope
24. I don't like you anymore. Even I don't like Ann Laurie.
25. (In response to an instruction not to spill his Coke,) OK, even not one drop.
26. I don't see a daddy around here. Even I don't see a sister around either.
27. Only there's one cow. He must be lonely. Even he doesn't have one friend to keep him company.
28. Who can drive our car? Not Ann Laurie. Not Mommy. Even not Carole.
29. Come in his room! He has lots of stuff in there. Even he has two guns.
30. I know how to take off my 'jamas. I know how to put on my sweater. Hey! Even I know how to put on my dress.
31. You bumped me down. Even you knocked down my sweater.
32. She was angry with me. (Why?) For throwing. (What did you throw?) A book. Also my elephant. Also she was really angry.
33. Only I can have jello--nothing else.
34. Even they have wood and paint. Sometimes they have metal.
35. (You certainly have lots of pockets on this coat.) Even I have a zipping pocket--for safety.
36. The workers brought lots of equipment into our backyard. Even they brought a backhoe.
37. These are great pants. Even they're saggy baggies.
38. I could pretend that this is a machine. Even this could be some binoculars.
39. (That pajama doesn't have a button.) Only it has a zipper.

These sentences differ from the production of adults in obvious ways; the first task in approaching a definition of that difference is to describe the structure of the children's sentences. In doing so, we must keep in mind the danger of "reading into" the children's use of these sentences what we, as adults, want to find there; and we must remember that "it is possible that the structural parameters the child is searching for to enable him to understand and produce utterances could be different from those the adult uses and his method of determining those parameters could be very different" (Menyuk, 1969, p. 9). For example, consider such utterances as (1), (7), (12), (21), and (33), which I repeat for convenience sake: (1) I had a terrible time. I tripped and fell down. Billy kicked me. Even Brian hit me with a stick; (7) Even you don't have the same glasses like me. Just I do, don't I?; (12) It was really raining hard. Even it thundered; (21) She hit me with a rocking chair. Even she colored on the rocking chair; (33) Only I can have jello--nothing else. At least in my dialect, the comparable sentences are Brian even hit me with a stick or Brian hit me with a stick, even; It even thundered; She even colored on the rocking chair; and I can have only jello--nothing else (as far as the placement of just is concerned, my sentence and the one in (7) are identical). Such a juxtaposition makes the differences in the placement of the logical formatives obvious. Less obvious are the differences in intonation and in the kind of data apparently used in the definition of scope.

In some of these cases, an adult speaker has no problem in determining what the scope of the logical formative is. Without introducing any more data than what is given on the printed page, the contrasts between you and I in (7), between hit and colored in (21), and between jello and nothing else in (33) suggest that those constituents function as the scope of the logical formatives. And in adult speech we would expect such pairs to be highlighted by the device of contrastive stress. However, in the case of (1), if Brian were the scope of even, as it would be in adult speech, two things would be true which, in fact, are not. First, the speaker would be expressing surprise that Brian would hit him (or he would expect the hearer to be surprised by such an event), but that was surprising to neither speaker nor hearer in this case. Second, if Brian were the scope, the intonation peak of the sentence would fall there; but in the actual case the intonation peak fell on stick. Thus, both context and the facts of intonation suggest that the whole sentence is the scope of even.

While the difference between the intonation of the adult and child versions of (1) is obvious, the difference is less obvious in the case of examples like (7) and (21). In general, even in the cases which seem closest to adult speech, the children's intonation differs somewhat from that of an adult. Consider the examples which we have discussed so far. The intonation data is given as follows: normal primary stress is indicated by a superscript 1, expressive stress and pitch are indicated by capitalization:

(1) I had a terrible time^{1}. I tripped and fell down^{1}. Billy kicked me^{1}. Even Brian hit me with a STICK^{1}.

(7) Even YOU^{1} don't have the same glasses like me. Just I^{1} do, don't I?

1
(12) It was really raining hard. Even it THUNdered.
1 1
(21) She hit me with a rocking chair. Even she COLored on the rocking chair.
1
(33) Only I can have JELlo--nothing else.

Notice that in (7), (21), and (33), where the expressive stress occurs on a constituent other than the one which would receive maximum stress in the absence of a logical formative, the expressive peak does not replace the normal one, as contrastive stress does in adult speech, but seems to occur in addition.

Apparently children consider the adult versions of such sentences as these equivalent to their own productions--in spite of these obvious differences. Thus, if I use the child's sentence, with minor pronominal and intonational adjustments, as an echo question response to his own assertion--saying, for example, Brian even hit you with a stick? or Brian hit you with a stick, even?--the child says "yes" or repeats his own sentence even more vigorously. But consider example (24), I don't like you anymore. Even I don't like Ann Laurie. An adult wishing to emphasize the contrast between you and Ann Laurie would be likely to place contrastive stress on those two words. The child who uttered this discourse, though, stressed the first sentence more normally--with like more heavily stressed than you; and the first syllable of Laurie received very heavy stress and very high pitch. In responding, I echoed with sentence-final even and maximum stress on like (You don't LIKE Ann Laurie, even?), an ungrammatical sentence for me. The child informed me that that was not what he had said, and, to straighten me out, repeated his own version with, again, even heavier stress on Ann Laurie. While the significance of that exchange is not clear to me in every respect, the child did seem very clearly to reject the interpretation of the scope of even which my question implied. And that, I think, lends support to my claims about the scopes of these examples and about the importance of intonation as a structural parameter which enables the child to understand and produce sentences like these.

In sum, it seems as though the child's grammar places the logical formative in sentence-initial position, assigns expressive intonation to the scope constituent, and interprets the sentence in terms of the lexical characteristics of the logical formative and some kind of association between the formative and its scope which is at least partially based on intonation. The question remains, though, how to account for the sentence-initial placement of the logical formative. Informally, the child's grammar either derives the logical formatives in sentence-initial position or it derives them with their scope and another rule collects the logical formatives and puts them in sentence-initial position. There is no a priori reason to prefer either account; however I think that there is at least some evidence that the former possibility is the correct description. This evidence is of three kinds. First, in some of the examples the scope of the logical formative appears to be a transformationally derived constituent which did not exist in the basic form of the sentence. Second, the findings of Klima and Bellugi-Klima (1966) concerning early forms of negation seem to parallel this account. Third, the oldest of my informants shows signs of moving into a new stage of development, and some of his sentences suggest that the sentence-initial position is basic.

Consider, for instance, the scope of the logical formative in such sentences as (19) Mommy, only a bottle is to put in your mouth; (27) Even he doesn't have one friend to keep him company; and (34) Even they have wood and paint. Underlying (19) would be a structure terminating in a string something like a bottle is it for you to put it in your mouth--that is, a structure roughly parallel to that underlying a string like a bottle is something that you put in your mouth. The sense of (19), I think, is comparable to an adult sentence like a bottle is something that you only put in your mouth. However, if only derives at the level of deep structure dominated by the scope node, the relevant substring will have the shape you only put a bottle in your mouth--an unattractive reading on several grounds, but especially because it seems not to capture the child's intention in uttering the actual sentence. In fact, from that clause I get the reading that only bottles, not candy, nor anything else, can be put in one's mouth; but the actual case involves a claim about the only appropriate action with a bottle. Example (27) is somewhat harder to assign a structure. One possibility is that the infinitival structure modifies the object noun phrase, that it parallels a structure like one friend who will keep him company. Another possibility is that it derives from a noun phrase with the shape it one friend keep him company and that the surface structure follows from the operation of a raising rule. In either case, though, deriving the even with either the noun phrase as scope or the whole complement sentence as scope produces anomalous readings. Finally, the structure underlying (34) appears to involve sentence conjunction of the form They have wood and they have paint from which the surface form is derived by some kind of deletion operation. If even originates in the scope constituent in the basic structure, then it could originate attached to wood or paint, or both. In that case, the surface form should be ambiguous, which in the child's use it is not. That suggests that, in the child's interpretation of the sentence, even is "read" not in terms of its relation to the underlying structure but in terms of the superficial compound noun phrase. Data such as these, then, argue that for children logical formatives originate in sentence-initial position.

That argument is strengthened by the similarity of early forms of negation to these sentences with logical formatives. Klima and Bellugi-Klima (1966) point out that children's first negative sentences differ sharply from those of adults, citing exchanges such as Adult: Well, is the sun shining? Child: No the sun shining. Adult: Oh, the sun's not shining? (p. 465). As the child's grammar develops, his negatives more and more closely approximate those of the adult language. However, the data seem to amply motivate the postulation of a sentence-initial negative element as basic and the conclusion that later repositionings are transformational in nature. The development of negative sentences does not relate directly to the development of sentences with logical formatives. For one thing, although the negative particle might be considered a kind of logical formative and although both phenomena involve the question of scope and similar problems of interpretation in adult speech, the children whose speech I have observed began to use even and only when they were in the third stage of negative development, or a little beyond it. Still, two of the children developed negation very much according to the pattern outlined by Klima and Bellugi-Klima. That that is the case provides additional backing for my claim that the logical formatives originate in fixed sentence-initial position.

Finally, the oldest of the children I have been observing is no longer always comfortable with the kinds of sentences we have been discussing. Along with those kinds of sentences, he occasionally uses logical formatives in adult position, but more often he now uses sentences with two logical formatives where both adults and the younger children would use only one. Typical of the sentences of this new stage are these:

(40) You can only pretend to throw it, but don't really throw it.
(41) Did you even see him run at a race?
(42) (Are the dishes all off the table?) There's only the glass with the butter plate.
(43) I didn't such my thumb. Not even this morning. Even I didn't do it all night.
(44) Ann Laura: I want to push the inside buttom. Tony: Ann Laura has even pu--...even Ann Laura has pushed the outside button today.
(45) Tony: Ann Laura, it's time to eat. Ann Laura: Oh, is it time to get up? Tony: Even it's not time even.
(46) Even Bobby hit even Bradley.
(47) Even Bobby even got a football.
(48) Richard: Even Danny has gone to the movie. Adult: Danny has even gone to the movie? Tony: Even Danny has even gone to the movie.

Of these, (40)-(42) correspond rather closely to adult usage with regard to the positioning of even and only. (43)-(44) illustrate within one discourse the kind of alternation described in Menyuk (1964)--the first even sentence matching adult production, the second reverting to the earlier form. But (45)-(48) illustrate an intermediate stage. If it is true that movement transformations involve a complex of the elementary operations of substitution and deletion, then it seems that these examples can be accounted for by claiming that the child's grammar enables him to perform the first stage but not the second. In this respect the child's use of even relates to certain aspects of early interrogation. As children begin to use wh-questions, they seem not to have the auxiliary attraction rule that adults do; thus, as is well-known, instead of asking Why can't I go? the child is likely to ask Why I can't go? and so on. Along with many sentences like the latter one, two of these children have produced quite a number of sentences such as Why can't I can't come with you? and Don't you don't like Danny? It is worth noting that one of the children who uses this kind of question does not yet produce sentences like (45)-(48), while the other does. Thus such evidence seems to support the general claim about the development of movement rules as well as the particular claim about the development of logical formative placement.

In terms of what seems to be true of the development of movement rules, these intermediate stage data provide a problem for the claim that the logical formative originates attached to its scope. If that were the case, then the child's grammar at the initial stage would have to include a transformation of roughly the form X, LF + Sc, Y === LF_c, X, Ø Sc, Y (LF_c = copy of logical formative, Sc = scope constituent). In the next stage, that would give way to a rule like X, LF + Sc, Y === LF_c, X, LF + Sc, Y. Finally, that would give way to the adult grammar. This account seems not to accord with the developmental process described in such studies as Menyuk (1969). Too, even if made more detailed, it does not account for the fact that in some sentences, like (45), neither surface even is especially close to its scope. On the other hand, the assumption that the logical formatives originate in

sentence-initial position allows for a relatively straight-forward account of how a child might produce and understand the sentences at each stage, one that seems in accord with these data and with what we know about the development of related language phenomena.

Although more data of this kind must be considered before we can reach any definite conclusions about either the grammatical capacity of children or about the relationship of the structure of the child's grammar to that of an adult's, I think this discussion does suggest some interesting hypotheses concerning the nature of children's grammars. Not only do these data motivate the claim about the origin of logical formatives as sentence-initial constituents, they also point to interesting relationships between the structure of children's sentences with logical formatives and that of their negative and interrogative sentences. Especially interesting is the fact that children's understanding of these sentences appears to follow from a combination of phonological, syntactic, and lexical information. These data also provide additional corroboration of the by now orthodox position concerning the limited role of imitation in language acquisition--of the independence of the child's grammar from the adult's. Because of that, it is not possible to say at this point what the study of this aspect of children's language can contribute to our understanding of the larger theoretical issues involved in the discussions of Fraser, Jackendoff, et al. However, I think that these hypotheses do at least suggest some viable approaches to further study of children's grammatical capacity and to the general nature of human linguistic competence.

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